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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/821,868

04/12/2004

Jussi Pihlajamaa

060282.00150

1847

32294

7590

06/20/2008

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VIENNA, VA 22182-6212

EXAMINER

THIER, MICHAEL

ART UNIT

PAPER NUMBER

2617

MAIL DATE

DELIVERY MODE

06/20/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/821,868	<b>Applicant(s)</b> PIHLAJAMAA ET AL.	
	<b>Examiner</b> MICHAEL T. THIER	<b>Art Unit</b> 2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 May 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,6-13 and 17-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,6-13 and 17-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments filed 5/01/2008 have been fully considered. The applicant argued that the Gunzelmann et al. (WO/02091601) reference was not a proper reference since it was not published more than one year before the priority date of the instant application.

In response to applicant's argument, the examiner would like to note that 35 U.S.C. §102(b) states: "A person shall be entitled to a patent unless — the invention was patented or described in a ***printed publication in this or a foreign country*** or in public use or on sale in this country, **more than one year prior to the date of the application for patent in the United States**" (emphasis added). The statute does not require the reference to be published more than one year before the priority date of the application, it only requires the reference to be published more than one year before the effective US filing date of the application. Further see section 2133 of the M.P.E.P. which states "THE 1-YEAR TIME BAR IS MEASURED FROM THE U.S. FILING DATE", and M.P.E.P. section 706.02 [R-6] Rejection on Prior Art, Part VI, Letter (C) Determining the Effective Filing Date Of An Application, which further explains that if an application claims foreign priority the effective filing date is the filing date of the US application. In the instant case the effective US filing date of the application is 4/12/2004 (US filing date), and the Gunzelmann et al. (WO/02091601) reference was published on 11/14/2002, thus more than one year prior. Therefore, the reference clearly qualifies as prior art under 35 U.S.C. §102(b).

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 6-13, and 17-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bridgelall (US 6717516) in view of Gunzelmann et al. (WO/02091601).

**Regarding claims 1, 6, 13, 17, 22, and 26.** Bridgelall teaches a radio equipment system having a modular structure (figure 2), the system comprising:

a baseband modem for modulating and demodulating; (figure 2 item 46, baseband means)

a digital interface; (figure 2 item 42, digital interfacing means) and

a radio frequency unit including a digitally operating radio frequency control unit and a radio frequency parts unit, (figure 2 item 34, the RF unit is inherently digitally operated and column 2 lines 31-39, column 5 lines 1-15)

wherein the baseband modem and the radio frequency unit respectively form physically separate modules which are connected with each other by the digital interface. (see figure 2 which shows the RF unit 34, outside the box 58, which contains the baseband modem 46)

However, Bridgelall does not specifically disclose that the RF module and the baseband modem are physically separate modules connected by a digital interface.

Gunzelmann teaches a transmission configuration in figure 1 (shown on front cover, along side of the abstract). He clearly shows the baseband module, item 1, being physically separate from the RF unit, item 3, and connected by a digital interface, item 2. Further see the 4<sup>th</sup> paragraph on the 1<sup>st</sup> page of the translation, which clearly states that the baseband parts and the RF parts are separate from one another (i.e. separate integrated circuits (chips)). The examiner would further like to point to the abstract or the 7<sup>th</sup> paragraph on the 1<sup>st</sup> page of the translation (starts with According to invention...) which explains the baseband component (baseband construction unit), radio frequency unit including digitally operating frequency control means and radio frequency parts, (i.e. high frequency construction unit using digital data transmission) and the digital interface (interface 2, having exclusively digital structure), which therefore teaches all the limitations of the claims, except for the fact that the baseband module includes a baseband modem, which is clearly taught by the primary reference, Bridgelall, in figure 2 item 46.

Therefore it would have been obvious for one of ordinary skill in the art at the time of invention to utilize the teachings of Gunzelmann with the teachings of Bridgelall. The motivation for doing so would have been to allow for high flexibility of the structure. (Gunzelmann abstract)

**Regarding claim 18.** Bridgelall further teaches wherein the module forming the baseband modem comprises: correction means for performing forward error correction coding and decoding; and symbol mapping means for symbol mapping and

demapping. (column 5 lines 1-15, 29-45 and column 7 lines 33-38 read on the limitations in this claim)

**Regarding claims 19 and 21.** Bridgelall further teaches wherein the radio frequency control means comprises respective control loops for pulse shape filtering, transmitter and receiver correction loops, timing recovery means for performing receiver timing recovery, and carrier recovery means for performing carrier timing recovery. (column 5 lines 29-45 reads on the limitations in this claim)

**Regarding claim 20.** Bridgelall further teaches wherein the transmitter and receiver correction loops comprise quadratic error correction means for performing quadratic error correction, balance error correction means for performing balance error correction, bias error correction means for performing bias error correction, and a gain error correction means for performing bias error correction. (column 5 lines 29-45 reads on the limitations in this claim, the different types of correction means are well known in the art and would have been obvious to one of ordinary skill to allow for the correct signal to be transmitted without error.)

**Regarding claims 7 and 25.** Bridgelall further teaches sending, from the baseband modem module to the radio frequency unit module, transmitter data including in-phase component signals and quadratic phase component signals; sending, from the baseband modem module to the radio frequency unit module, transmitter clock signals; sending, from the baseband modem module to the radio frequency unit module, control signals providing support for type-specific functionalities; sending, from the radio frequency unit module to the baseband modem module, receiver clock signals;

sending, from the radio frequency unit module to the baseband modem module, receiver data including in-phase component signals and quadratic phase component signals; and exchanging, between the radio frequency unit module and the baseband modem module, microprocessor signals; wherein said sending steps and said exchanging step are driven by the digital interface. (column 5 lines 29-45 and column 6 line 37 to column 7 line 3 reads on the limitations in this claim)

**Regarding claim 8.** Bridgelall further teaches said method further comprising providing all signals as digital signals, and wherein a clock rate is provided as a system symbol clock rate, except for a case that a function in the modem utilizes two samples per symbol where a double symbol rate frequency is supported. (column 2 lines 31-38 and column 6 line 37 to column 7 line 3 reads on the limitations in this claim)

**Regarding claim 9.** Bridgelall further teaches the steps of: forward error correction coding and decoding; symbol mapping and demapping; and implementing the forward error correction coding and decoding and symbol mapping and demapping steps in the baseband modem. (column 5 lines 1-15, 29-45 and column 7 lines 33-38 read on the limitations in this claim)

**Regarding claims 10, 12, 27, and 29.** Bridgelall further teaches wherein the radio frequency control means within the module forming the radio frequency unit includes respective control loops performing pulse shape filtering, transmitter and receiver correction, receiver timing recovery and carrier recovery. (column 5 lines 29-45 reads on the limitations in this claim)

**Regarding claims 11 and 28.** Bridgelall further teaches wherein the transmitter and receiver correction comprises a quadratic error correction, a balance error correction, a bias error correction, and a gain error correction. (column 5 lines 29-45 reads on the limitations in this claim, the different types of correction means are well known in the art and would have been obvious to one of ordinary skill to allow for the correct signal to be transmitted without error.)

**Regarding claim 23.** Bridgelall further teaches wherein the signals are exchanged serially. (column 7 lines 4-37)

**Regarding claim 24.** Bridgelall further teaches wherein the signals are exchanged in parallel. (column 7 lines 4-37)

### ***Conclusion***

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.



5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL T. THIER whose telephone number is (571) 272-2832. The examiner can normally be reached on Monday thru Friday 7:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duc Nguyen can be reached on (571) 272-7503. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. T. T./  
Examiner, Art Unit 2617  
6/13/2008

/Duc Nguyen/  
Supervisory Patent Examiner, Art Unit 2617